

Parameter estimation of the cure fraction based on BCH model using left-censored data with covariates.

ABSTRACT

Medical investigations nowadays allow the incorporation of cure individuals in the analysis, especially for chronic diseases such as cancer. Therefore, survival models that incorporate the cured patients in the analysis are called cure rate models. In this paper, we propose an analytical approach for parametric estimation of the cure fraction in cancer clinical trials based on the bounded cumulative hazard (BCH) model with covariates involved in the data set. The analysis is constructed by means of the exponential distribution in the case of left censoring and within the framework of the expectation maximization (EM) algorithm. The analysis provided the analytical solution and a simulation study for the cure rate parameter.

Keyword: Cure fraction; Left censoring; Em algorithm; BCH model; Covariates.